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10/811,805	03/30/2004	Seong-bong Kim	SAMHEE-041	2839

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EXAMINER	
ROBERTS, JESSICA M	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/811,805	KIM, SEONG-BONG	
	Examiner	Art Unit	
	Jessica Roberts	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *03/30/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. **Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al., US-6, 707,852 in view of Applicants Admitted Prior Art (AAPA) and further in view of Wang et al., US-6, 707,852.**

Regarding **claim 1**, Wang teaches a moving picture transmission system using a modified MPEG coding method, comprising; a video processing unit (column 21 line 7-10 and fig. 9, 202) comprising; a signal processor adapted to receive a video signal and convert the video signal into digital video data when it is an analog video signal (Wang discloses the video source which can include, for example a video cassette player, a video laser disk player, or similar. It is clear to the examiner that the system as

disclosed by Wang would necessitate the use of an A/D converter for converting analog signals to digital signals (column 5 line 65 to column 6 line 2), and an MPEG encoder (fig. 1, 100) adapted to encode the digital video data according to temporal correlation (P-frame, column 2 line 12-18) using a modified MPEG coding method that fixes an object, selected as a reference frame of inter-frames in each Group of Pictures (GOP) (I-frame) , to an intra-frame, and adapted to output frames comprising the encoded digital video data (encoded video signal, 1050); a transmission unit, comprising, a transfer buffer for temporarily storing selected ones of the frames of the encoded digital video data (fig, 1, 102, 104); storage unit (frame buffer, fig. 1, 102), comprising a storage frame selector adapted to receive from a user a number of frames to be recorded per unit time (frame rate, column 3 line 24-25, column 16 line 63-67 and fig. 1, 120), to determine an integer value N, by dividing a maximum number of frames outputted from the video processing unit per time by the number of frames to be recorded per unit time (Wang discloses a ratio of the frame rate and the sequence rate to determine the frame distance, column 18 line 48-58), storing one frame for every N frame for each GOP of the encoded video data transmitted from the video processing unit, and dropping other frames (column 19 line 52-67), and moving a picture database for storing the frames selected by the storage frame selector (frame buffer 102). Wang is silent in regards to a transfer frame selector adapted to transmit the selected frames of encoded digital data from the video processing unit to the transfer buffer when remaining capacity of the transfer buffer is larger than a set value, the transfer frame selector dropping a frame outputted from the video processing unit when t is an inter-

frame and a remaining capacity of the transfer buffer is smaller than the predetermined value, the transfer frame selector dropping all frames of a GOP to which a current intra-frame belongs when a frame transmitted to the transfer buffer immediately preceding the current intra-frame and the remaining capacity of the transfer buffer is smaller than the set value, the transfer frame selector transmitting the current intra-frame to the transfer buffer when the frame transmitted the transfer buffer immediately preceding the current intra-frame is an inter-frame and the remaining capacity of the transfer buffer is smaller than the set value.

Regarding claim 1, Wang is silent in regards to transfer frame selector adapted to transmit the selected frames of encoded digital data from the video processing unit to the transfer buffer when remaining capacity of the transfer buffer is larger than a set value.

However, the examiner notes that it is well known and conventional in the art for a buffer to transmit data based upon its capacity. It is very clear to the examiner that if the remaining capacity of the buffer is larger than a set value, part of its function would be to send or transmit data since space is available. Official notice is taken that both the concept and advantage of providing the limitation as claimed above are expected in the art, and therefore would have been obvious to incorporate in Wang for the benefit of transmitting data accordingly to prevent under and overflows.

The combination of Wang and official notice are silent in regards to the transfer frame selector dropping a frame outputted from the video-processing unit when it is an

inter-frame and a remaining capacity of the transfer buffer is smaller than the predetermined value.

However, AAPA teaches it is possible to normally reconstruct the received image even if B frames are discard ([0006)], which reads upon the limitation that the transfer frame selector dropping a frame outputted from the video processing unit when it is an inter-frame and the remaining capacity of the transfer buffer is smaller than the predetermined value.

Therefore it would have been obvious at the time of the invention to combine the teachings of Wangs' method with AAPA, as it is considered conventional MPEG encoding ([0006]).

The combination of Wang and AAPA fails to teach the transfer frame selector dropping all frames of a GOP to which a current intra-frame belongs when a frame transmitted to the transfer buffer immediately preceding the current intra-frame and the remaining capacity of the transfer buffer is smaller than the set value.

However, Wang does discloses that the frames are dropped in accordance to the frame distance, which is the ratio of the current bit rate of the motion picture and the predicted sequence frame rate (column 18 line 48 to column 19 line 67) that would determine the number of frames to be dropped. It is clear to the examiner that the system as disclosed by Wang is fully capable of dropping all frames by adjusting the ratios of the current bit rate of the motion picture and the predicted sequence. Further

discloses by Wang is the encoder maximizes image quality without exceeding transmission bandwidth (abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention allow for adjustments of the frame distance to determine how many frames are dropped for enabling a system that provides efficient encoding and transmitting of image data while preserving image quality.

Further since AAPA teaches dropping the inter-frames, it is clear to the examiner that since the AAPA teaches dropping an inter-frame, which would yield both intra-, and inter-frames. Also, since a new GOP starts with an intra-frame, and ends with an inter-frame, it would have been obvious to combine the teachings of AAPA with well-known and conventional methods of transmitting intra-frames based upon buffer fullness.

Therefore, it would have been obvious at the time of the invention to combine the teachings of Wang and AAPA with the teachings of conventional methods of transmitting data based upon the capacity and fullness of the buffer for preventing overflow and underflow of transmitted data.

Re claims 2-3, which recite a corresponding method to the transmission system of claim 1. Thus, the analysis and rejection made in claim1 would have necessarily performed the method steps in claims 2-3.

Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al., US-6, 707,852 in view of Hurst et al., US-6, 034, 731 and in view of

Applicants Admitted Prior Art (AAPA) and further in view of Wang et al., US-6, 707,852.

In further regards to **claim 2**, Wang teaches a moving picture transmission method, comprising: (a) processing a moving picture signal received from a moving picture input device to convert it into ordered data (column 2 line 2 to 7), and encoding (encoder, fig. 1, 100) the data using a modified MPEG coding method that fixes an object, selected as a reference frame of inter-frames in each Group of Pictures (GOP) (I-frame), to an intra-frame and to output frames comprising the encoded digital video data (encoded video signal 1050);to transmit the encoded video data in real time at a data loss rate adapted to a variation in a network transmission rate (Wang discloses the cumulative bandwidth error is adjusted as time elapses to add to the available bandwidth, abstract) ; and (c1) receiving from a user a number of frames to be recorded per unit time, and determining an integer value N by dividing a maximum number of output frames of the video data encoded at the step (a) per unit time, by the number of frames to be recorded per unit time (column 18 line 48-58 and fig. 8), and (c2) storing one frame for every N frames for each GOP of the encoded video data and dropping the other frames, to store the encoded video data in the number of storage frames per unit time previously set (column 19 line 52-67).

Wang is silent in regards to confirming a remaining capacity of a transfer buffer when a start of a new frame of the encoded digital video data, dropping the current frame when the remaining capacity of the transfer buffer is smaller than the set value and the current frame is an inter-frame, a frame transmitted through the transfer buffer

immediately preceding the current frame is an intra-frame, and the remaining capacity of the transfer buffer is smaller than the set value.

However, Hurst teaches the use of a VBV (column 4 and fig. 4, and 5) which reads upon the limitation of (b1) confirming a remaining capacity of a transfer buffer when at a start of a new frame of the encoded digital video data. Hurst also discloses a decision source may be used to maintain appropriate levels of buffer utilization throughout the communications channel by causing the frame process to drop or add frames in response to an indicium of buffer utilization. In the manner, overflow or underflow errors in a far-end, e.g. television, receiver, decoder buffer may be avoided (column 2 line 61-67).

Therefore, it would have been obvious to combine the teachings of Wang with the teaching of Hursts' apparatus to drop frame for initialization of the buffer for performing speedup or similar function in an MPEG or ATSC environment without causing undesirable MPEG or ATSC non-conformities (Hurst, column 1 line 49-53).

The combination of Wang and Hurst as a whole are silent in regards to dropping the current frame when the remaining capacity of the transfer buffer is smaller than the set value and the current frame is an inter-frame, a frame transmitted through the transfer buffer immediately preceding the current frame is an intra-frame, and the remaining capacity of the transfer buffer is smaller than the set value.

However, Wang does discloses that the frames are dropped in accordance to the frame distance, which is the ratio of the current bit rate of the motion picture and the

predicted sequence frame rate (column 18 line 48 to column 19 line 67) that would determine the number of frames to be dropped. It is clear to the examiner that the system as disclosed by Wang is fully capable of dropping all frames by adjusting the ratios of the current bit rate of the motion picture and the predicted sequence.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention allow for adjustments of the frame distance to determine how many frames are dropped for enabling a system that provides efficient encoding and transmitting of image data while preserving image quality.

The combination of Wang and Hurst as a whole are silent in regards to transmitting a current frame through the transfer buffer when the remaining capacity of the transfer buffer is larger than a set value. However, Official notice is taken that both the concept and advantage of providing limitations as claimed are notoriously well known and expected in the art, and therefore would haven been obvious at the time of the invention to incorporate in the combination of Wang and Hurst for the benefit of transmitting data and preventing underflow and overflow of the buffer.

The combination of Wang, Hurst and well-known art are silent in regards to dropping the current frame when the remaining capacity of the transfer buffer is smaller than the set value and the current frame is an inter-frame.

However, AAPA teaches when the I/P/B frame structure is applied to the MPEG coding, it is possible to normally reconstruct the reconstruct the received image even if B-frames are discarded ([0006]), which reads upon the limitation of dropping the current

frame when the remaining capacity of the transfer buffer is smaller than the set value and the current frame is an inter-frame.

Therefore, it would have been obvious at the time of the invention to combine the teaching of Wang, Hurst, and well-known art for, as it is considered conventional MPEG encoding ([0006]).

The combination of Wang, Hurst, and well known art are silent in regards to a frame transmitted through the transfer buffer immediately preceding the current frame is an intra-frame, and the remaining capacity of the transfer buffer is smaller than the set value and transmitting the current frame through the transfer buffer when the frame transmitted through the transfer buffer immediately preceding the current frame is an inter-frame.

However, since AAPA teaches dropping the inter-frames, it is clear to the examiner that since the AAPA teaches dropping an inter-frame, which would yield both intra-, and inter-frames. Also, since a new GOP starts with an intra-frame, and ends with an inter-frame, it would have been obvious to combine the teachings of AAPA with well-known and conventional methods of transmitting intra-frames based upon buffer fullness to complete the transmitting of frames whether the frames are inter- or intra-frames.

Therefore, it would have been obvious at the time of the invention to combine the teachings of Wang, Hurst, and AAPA with the teachings of conventional methods of

transmitting data based upon the capacity and fullness of the buffer for preventing overflow and underflow of transmitted data.

3. Regarding claim 3, see claim 2 above.

Examiner's Note

The referenced citations made in the rejection(s) above are intended to exemplify areas in the prior art document(s) in which the examiner believed are the most relevant to the claimed subject matter. However, it is incumbent upon the applicant to analyze the prior art document(s) in its/their entirety since other areas of the document(s) may be relied upon at a later time to substantiate examiner's rationale of record. A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. W.L. Gore & associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984). However, "the prior art's mere disclosure of more than one alternative does not constitute a teaching away from any of these alternatives because such disclosure does not criticize, discredit, or otherwise discourage the solution claimed...." In re Fulton, 391 F.3d 1195, 1201, 73 USPQ2d 1141, 1146 (Fed. Cir. 2004).

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Smirnov et al., US-2007/0116370 Adaptive entropy encoding/decoding for screen capture content

Wan et al., US-2002/0054608 Forward error correction at MPEG-2 transport stream layer

Tanaka et al., US-5, 751,360 Code amount controlling method for coded pictures

Adiletta et al., US-6,760,478 Method and apparatus for performing two pass quality video compression pipelining and buffer management

Wang et al., US-7, 020,198 Rate control for an MPEG transcoder with out a priori knowledge picture type

Weaver et al., US-4, 413,289 Digital recording and playback method and apparatus

Adachi et al., US-2004/0066847 Apparatus and method for generating a transmit frame

Lyons et al., US-6, 061,399 Method and apparatus for information stream frame synchronization

Liang et al., US-2003/0147466 Method, system, device, and computer program product for MPEG variable bit'rate (VBR) video traffic classification using a nearest neighbor classifier

Liu et al., US-6,714,592 Picture information conversion method and apparatus

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jessica Roberts whose telephone number is (571) 270-

1821. The examiner can normally be reached on 7:30-5:00 EST Monday-Friday, Alt Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha D. Banks-Harold can be reached on (571) 272-7905. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jessica M. Roberts

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